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0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
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^{r} revised
x suppressed to meet the confidentiality requirements of the *Statistics Act*
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F too unreliable to be published
* significantly different from reference category ($p < 0.05$)

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Overview of the study

This article provides information about the number and characteristics of international students in Canada, and about their rate of transition into permanent residence. The article also examines the extent to which the transition rate varied across characteristics and cohorts, and whether these variations affected the profile of immigrants who are former international students. It does so by using a new administrative database—the Canadian Employer–Employee Dynamics Database (CEEDD).

- Between 1990 and 1994, Canada admitted 158,000 international students (i.e., temporary residents with a new study permit), or about 31,000 per year. Between 2010 and 2013, Canada admitted nearly 385,000 international students, or about 96,000 per year.
- In the early 1990s, international students were more likely to be aged less than 18 and study in primary or secondary/high schools. In the late 2000s, they were more likely to be aged 18 to 24, and study at the bachelor level or above.
- Between 20% and 27% of international students became permanent residents in the 10 years following the receipt of their first study permit, depending on the cohort of arrival.
- International students from countries with a lower GDP per capita (such as India) typically had higher transition rates into permanent residence than those who came from countries with a higher level of GDP per capita (such as South Korea).
- Nearly one-half (48%) of immigrants who first came to Canada between 2000 and 2004 as international students applied as principal applicants in the economic class. This compared with 30% among those who were international students between 1990 and 1994.

Introduction

Every year, tens of thousands of international students from all over the world are attracted to Canada to pursue educational opportunities. Since the 1990s, Canada has experienced rapid growth in its numbers of international students. Together with temporary foreign workers and International Experience Canada, international students are one of the three classes of temporary economic residents that are admitted to Canada.[1] According to a strategic plan released in early 2014, the Canadian government hopes to attract 450,000 international students by 2022, which will double the number of international students currently studying in the country.[2]

The large inflow of international students provides Canada with a large pool of well-educated individuals from which to select permanent residents. Among temporary foreign residents who obtained a study permit between 1990 and 2014, more than 270,000 (19%) became permanent residents by 2014.[3] Additional measures to attract highly educated international students and facilitate their transition to eventual immigration were added in the late 2000s, when Citizenship and Immigration Canada (CIC) permitted international students to seek work opportunities and acquire the skilled work experience required to apply for permanent residence.[4]

Landed immigrants who first arrive in Canada as international students have some advantages over other immigrants. They enter Canada at a relatively young age; their Canadian educational qualifications, unlike foreign credentials, are easily understood by Canadian employers; they tend to be more proficient in one of the official languages; and they are likely to have a better knowledge of the Canadian labour market and social networks that may facilitate job searches. Accordingly, immigrants who are former international students are expected to face fewer integration barriers than immigrants who have been educated abroad.[5] The labour market outcomes of international students who become landed immigrants, however, vary across characteristics such as education level, language ability and source region.[6] A better understanding of the profile of international students provides additional insights into the ability of these potential future immigrants to integrate into the Canadian labour market.

This article examines trends in the number of international students to Canada and their rate of transition into permanent residence. The analysis focuses on the characteristics of international students in different cohorts, defined in terms of the year in which they first received a permit authorizing them to study in Canada. The article also provides information on international students who subsequently became landed immigrants.

The data originate from the Canadian Employer–Employee Dynamics Database (CEEDD), a data initiative matching Canadian business enterprises with the workers they employ on the basis of multiple sources of administrative data. These sources include the Temporary Residents File and the Immigrant Landing File (see *Data sources, methods and definitions*), allowing researchers to draw inferences about the immigration pathways of international students in Canada.

International students in Canada

In this paper, the number of international students refers to total entries of temporary residents who obtained a study permit for the first time ("initial" entries).[7] The number of international students in Canada rose steadily between the early 1990s and the early 2010s. Between 1990 and 1994, Canada received approximately 158,000 international students (an annual average of approximately 31,000). By the end of the period from 2005 to 2009, the number of international students doubled to approximately 340,000 (an annual average of approximately 68,000), and by 2010 to 2013, the number reached 385,000 (an annual average of about 96,000) (Table 1).

International students come to Canada at various ages and attend various types of educational institutions. For example, some come to Canada through student exchange programs at the high school/secondary level while others come to obtain a post-graduate degree from a Canadian university. In short, they are a heterogeneous group.

The majority of international students (74% to 80%, depending on the cohort) are under the age of 25. However, the proportions who were aged 18 to 24 increased over successive cohorts as an increasing share of international students reached higher levels of educational attainment. In the early 1990s, 43% of international students came to Canada to attend primary and secondary schools, while 18% pursued a university education. In the early 2010s, more international students attended universities (29%) than primary and secondary schools (22%).[8]

The composition of source country/region also changed considerably. Most notably, the proportion of international students arriving from China and India increased from 6% to 37% from the early 1990s to the early 2010s,[9] while the share from the United States and Europe declined from 32% to 18%. The proportion of international students from Africa changed little, ranging from 6% to 8% over the period.

The geographic distribution of international students within Canada generally follows the patterns observed among new immigrants. The majority of international students resided in Ontario, British Columbia and Quebec, particularly in the metropolitan areas of Toronto, Vancouver and Montreal.

Transition to permanent resident status

International students likely come to Canada for various reasons. Some may intend to return to their home country once they have acquired their Canadian qualifications, while others may intend to remain in Canada for a period of time to obtain work experience in an advanced economy. Still others may hope to become landed immigrants and remain in Canada permanently.[10]

It is possible to estimate the proportion of international students who become permanent residents by calculating a cumulative transition rate. The cumulative rate, which can be calculated for any cohort, is

Table 1
Demographic characteristics of international students at the time of their first study permit, Canada

	First study permit obtained in				
	1990 to 1994	1995 to 1999	2000 to 2004	2005 to 2009	2010 to 2013
	percentage				
Gender					
Male	51	50	51	54	55
Female	49	50	49	46	45
Age at first study permit					
Under 18	33	25	22	25	21
18 to 24	41	49	55	55	58
25 and over	26	26	23	21	20
Level of study at first study permit					
Primary and secondary	43	28	24	25	22
Trade	10	15	15	12	6
Postsecondary, other	21	24	27	25	34
Bachelor	10	13	16	19	18
Above bachelor	8	8	8	10	11
Other	8	12	10	8	8
Source country/region					
Northern and Western Europe	17	17	13	13	10
Southern and Eastern Europe	5	4	3	4	4
Africa	8	6	6	7	7
China	5	5	15	16	24
India	1	1	3	5	13
Japan	11	13	9	6	4
South Korea	3	15	20	19	9
Other Asian countries	26	16	13	14	14
United States	10	9	7	6	4
Other	13	15	13	11	11
Destination of first study permit					
Atlantic	5	4	5	6	5
Montreal	13	13	12	11	11
Quebec, excluding Montreal	7	6	4	4	4
Toronto	11	12	16	16	22
Ontario, excluding Toronto	27	21	18	18	21
Prairies	14	14	12	11	10
Vancouver	11	20	20	20	16
British Columbia, excluding Vancouver	13	12	13	13	12
Territories	0	0	0	0	0
Number of observations	158,000	219,000	330,000	340,000	385,000

Source: Canadian Employer–Employee Dynamics Database (CEEDD), Temporary Residents File, 1990 to 2013.

the share of international students who become landed immigrants a number of years after obtaining their first study permit.[11] For example, among international students who obtained their first study permit between 1995 and 1999, about 15% became permanent residents in the five years that followed. When the period of observation is extended to the first 10 years after the study permit was received, that proportion rises to 20%, and then to 22% by the fifteenth year (Chart 1).

Of the international students in the early 1990s (1990 to 1994), late 1990s (1995 to 1999) and early 2000s (2000 to 2004) cohorts, those in the early 1990s cohort were the most likely to subsequently become permanent residents in Canada. Over the 10 years after they received their first student permit, 27% of the early 1990s cohort became permanent residents, while this was the case for 20% and 25% of individuals in the late 1990s and early 2000s cohorts, respectively. The transition rates of international students in the late 2000s cohorts looked like those of the early 2000s cohorts over the first 5 years after receiving a study permit, but additional data must be accumulated to see whether this trajectory continues over the longer term.

In addition to varying across cohorts, rates of transition into permanent residence also vary across sociodemographic characteristics such as sex, age, level of study and source country. Again, transition rates by characteristic are examined at the tenth year after the first study permit is received (Table 2).

Within all cohorts, male international students tended to have higher transition rates than females by a margin of about two percentage points. In terms of age groups, transition rates were lower among international students who first obtained their study permit between the ages of 18 and 24—but this was only the case for the early 1990s- and late-1990s cohorts. Within the early 2000s cohorts, transition rates were more consistent across age groups, ranging from 24% to 28%.

In terms of educational attainment, international students in the early 2000s cohort who were studying at the bachelor level or above had higher transition rates than students at other levels of study. Moreover, the transition rates for university students increased across cohorts. Indeed, almost one-half (49%) of international students in the early 2000s cohort who

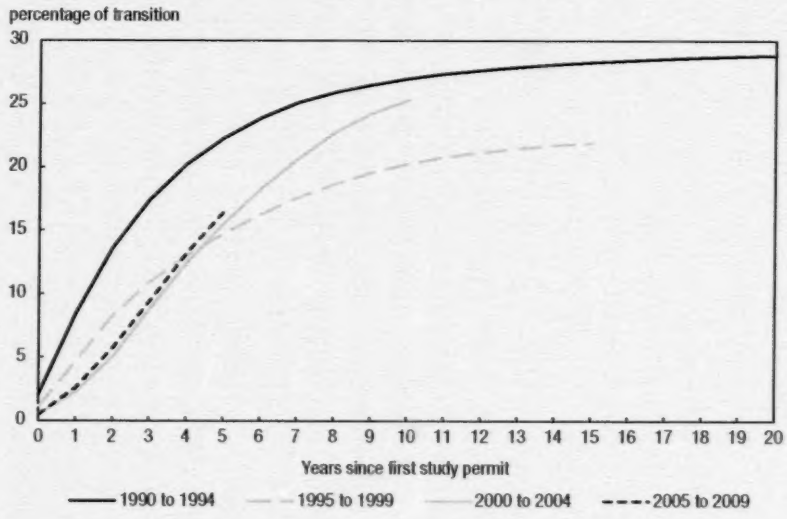
pursued graduate studies obtained permanent residence in Canada in the subsequent 10 years, while this was the case for 33% of those in the early 1990s cohort and 42% of those in the late 1990s cohort. The transition rate among international students who came to Canada to study at the bachelor level also increased, from about 22% to 32%.

Such increases reflect various modifications to the points system of immigrant selection during the 1990s and 2000s. These modifications enhanced the requirements for educational attainment and language ability in the evaluation of economic immigrants, and thus likely benefited international students who came to Canada for a university education.

The transition rates also differed by source country/region. International students from Northern/Western Europe, the United States, Japan and South Korea had lower transition rates than those from Southern/Eastern Europe, other parts of Asia and Africa. More particularly, the transition rates among international students from India, Africa and China were about three times higher than the rates obtained by those who came from Northern/Western Europe and the United States.

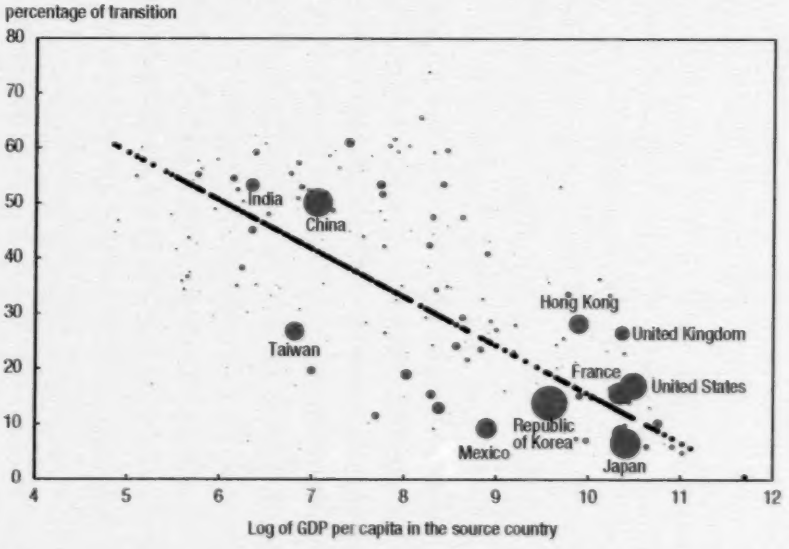
The large variation in the transition rates by source country/region may be related to the differences between source countries in economic development, job opportunities, and social and political environment. It is possible that international students from countries with lower levels of economic development and less favourable social and political environments are more motivated to seek permanent residence in Canada.

Chart 1
Cumulative rates of transition to permanent residence among international students



Source: Canadian Employer–Employee Dynamics Database (CEEDD), Temporary Residents File, 1990 to 2009.

Chart 2
Transition rates to permanent residence in the ten years following the receipt of the first study permit, and source country's log of GDP per capita



Source: Canadian Employer–Employee Dynamics Database (CEEDD), Temporary Residents File, 1990 to 2013.

Table 2
Cumulative transition rates to permanent residence in the ten years following the receipt of the first study permit

	First study permit obtained in		
	1990 to 1994	1995 to 1999	2000 to 2004
	percentage		
Gender			
Male	28	21	26
Female	26	19	24
Age at first study permit			
Under 18	33	26	24
18 to 24	20	16	25
25 and over	30	24	28
Level of study at first study permit			
Primary and secondary	31	25	25
Trade	25	10	13
Postsecondary, other	23	17	26
Bachelor	22	21	32
Above bachelor	33	42	49
Other	21	14	15
Source country/region			
Northern and Western Europe	14	13	16
Southern and Eastern Europe	38	35	36
Africa	38	46	55
China	61	57	47
India	47	53	55
Japan	7	6	6
South Korea	23	12	14
Other Asian countries	36	24	32
United States	20	16	16
Other	24	17	17

Source: Canadian Employer–Employee Dynamics Database (CEEDD), Temporary Residents File, 1990 to 2004.

The relationship between the transition rates of international students (at the tenth year) and the gross domestic product (GDP) per capita (in 2005 constant US dollars) of their source country supports this hypothesis (Chart 2). In the chart, each bubble represents a source country. The location of the bubble indicates a source country's position in the log of GDP per capita and the transition rate of their international students in Canada (among those who arrived between 1990 and 2004). The size of the bubble is weighted by the number of students. The lower the source country GDP per capita, the higher the rate of transition to permanent residence among international students in Canada.[12]

Characteristics of immigrants who are former international students

Having considered the size and characteristics of the international student population and the factors associated with transitions to permanent residence, this analysis now focuses on selected characteristics of international students who became permanent residents.

As noted above, the points system that Canada uses to select principal applicants in the economic class was changed in the 2000s. Specifically, principal applicants in the economic class received more points for being of prime working age, proficient in the official languages, and having Canadian work experience and a university degree.[13] Changes in the characteristics of international students who became permanent residents in Canada were observed in subsequent years.

For the international students who became landed immigrants in Canada, the number of years they studied in Canada increased. For example, the proportion who completed at least three years of study in Canada increased from 57% to 79% among those from the early 1990s and early 2000s cohorts, respectively. The increasing length of study reflects the increasing portion of international students who were at the postsecondary level rather than at the primary or secondary level, along with an increase in their age profile (Table 3).

Hence, among landed immigrants who were previously international students, the proportion aged 25 or over at landing increased from 52% to 71% while the proportion who had a university degree at landing increased from 36% to 56% among the early 1990s and early 2000s cohorts, respectively. The share who received a work permit prior to landing also increased.[14]

Finally, the admission categories through which they became permanent residents in Canada changed across cohorts. Specifically, the proportion who became permanent residents as principal applicants in the economic class increased from 30% among those from the early 1990s cohorts to 48% among those from the early 2000s cohort. This was consistent with the change in immigration

Table 3
Characteristics at landing of immigrants who were former international students

	First study permit obtained in		
	1990 to 1994	1995 to 1999	2000 to 2004
		percentage	
Years of study in Canada before landing			
2 years or less	42.6	33.6	20.6
3 to 4 years	40.5	42.9	52.7
5 years or more	16.9	23.5	26.7
Had work permit in Canada before landing			
With high skill	19.8	18.1	22.3
With low skill	4.1	2.5	3.6
Skill level unknown	17.2	16.8	25.0
No work permit	58.9	62.5	49.1
Age at immigration			
Under 18	24.8	19.1	9.7
18 to 24	23.6	18.7	19.6
25 and over	51.6	62.2	70.8
Education qualifications at landing			
Primary and secondary	43.1	31.4	21.5
Trade	5.3	2.9	2.1
Postsecondary, other	15.4	16.7	20.1
Bachelor	17.0	25.9	35.4
Above Bachelor	19.2	23.1	20.8
Canadian official language ability at landing			
English mother tongue	17.9	15.6	10.2
French mother tongue	6.6	8.2	7.1
Other mother tongue, speak English	54.6	55.1	62.6
Other mother tongue, speak French	3.6	3.0	2.0
Other mother tongues, speak English and French	5.1	8.5	11.3
No English or French	12.3	9.8	6.8
Class of immigration			
Economic, principal applicant	30.0	39.3	47.7
Economic, spouse or dependant	32.1	25.8	22.0
Family	30.4	27.7	22.5
Refugee	4.7	6.6	7.7
Other	2.9	0.6	0.1
Number of observations	41,000	44,000	71,000

Source: Canadian Employer–Employee Dynamics Database (CEEDD), Temporary Residents File; Immigrant Landing File, 1990 to 2004.

policy noted above, as well as with changes in the characteristics of the international student population in general.[15]

Overall, through the 1990s and 2000s, landed immigrants who had previously been international students spent a longer period of time studying in Canada, were increasingly likely to have studied at the postsecondary level, were increasingly likely to have received a work permit prior to landing, and were in their twenties when they became landed immigrants. The extent to which these changes subsequently improved the labour market outcomes of this group is a topic for further research.

Conclusion

This study has shown that the number of international students has increased continuously since the 1990s, and that their characteristics also have changed over time. A rising proportion of international students is arriving at the age of 18 or over to pursue a university degree. The composition of source regions has also changed. While Japan and the United States were the two top source countries in the early 1990s, they were replaced by South Korea and China by the early 2000s, and by China and India in the early 2010s.

This study also examined the transition rates of international students into permanent residence. Depending on the cohort of arrival, between 20% and 27% of international students became permanent residents in the 10 years after their first study permit was issued. The rates of transition to permanent residence, however, differed considerably by source country. International students from less-developed countries (or with a lower GDP per capita) typically had higher transition rates than those who came from countries with a higher level of GDP per capita.

Lastly, the period from the early 1990s to the early 2000s witnessed a major shift in the transition pathways to permanent residence for international students. Over time, international students who became immigrants increasingly initiated the application as principal applicants rather than being admitted as spouses or dependants in the economic class or family class. Accordingly, more former international student immigrants are prime-age workers who are proficient in one or both official languages, and who acquired a university education and work experience in Canada.

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Data sources, methods and definitions

Data sources

The main data source for this study is the Canadian Employer–Employee Dynamics Database (CEEDD). The CEEDD is an employer–employee matched databank created and maintained by Statistics Canada, which links various administrative datasets and contains information on Canadian business enterprises and the workers they employ.

For the purpose of this study, two input datasets in CEEDD are used to construct the analytical file. The first is the Temporary Residents (TR) file. The TR file is created by Citizenship and Immigration Canada (CIC) and contains sociodemographic and administrative information on all non-permanent residents in Canada. Foreign students were identified among non-permanent residents as anyone who ever held a study permit issued by CIC.

The second data source is the Immigrant Landing File (ILF), which contains sociodemographic characteristics at landing for immigrants who have arrived in Canada since 1980. This study uses the following characteristics at landing: highest level of completed education, class of immigration, mother tongue, and self-reported official language abilities.

In this paper, international students refer to the total entries of foreign students who receive a study permit for the first time, also referred to as "initial" entries. Most statistical reports published by CIC include renewals and/or re-entries in addition to initial entries, which means that numbers in this study are not comparable with official CIC reports on international students.

Notes

1. See Citizenship and Immigration Canada (2015).
2. See Foreign Affairs, Trade and Development Canada (2014).
3. A study permit is a written authorization that allows a foreign national to legally enter and stay in Canada to pursue academic, professional, vocational or other education or training. To apply for a study permit, international students have to provide proof that they have been accepted by a Canadian educational institution and that they have sufficient financial resources to cover their tuition fees, living expenses and transportation. Some international students do not require a study permit to study in Canada. They include those who are registered in a short-term course or program, family or staff members of foreign representatives to Canada, and minor children of temporary residents who hold a valid study or work permit (Citizenship and Immigration Canada, 2010).
4. International students may work on campus at the educational institution where they study; they may work off campus for up to 20 hours per week during the school year, and full time during scheduled school breaks; and they are eligible to participate in co-op and internship programs if the employment is an integral part of their course of study. International students who have graduated from a recognized Canadian postsecondary institution can apply for a work permit under the Post-Graduation Work Permit Program to gain the job experience that is required to apply for certain permanent residence programs (Citizenship and Immigration Canada, 2015).
5. See Hou and Bonikowska (2015).
6. See Citizenship and Immigration Canada (2010); Hawthorne and To (2014); Lowell and Avato (2014).
7. Other types of international students, which are not included in the data, include renewals and re-entries (students who went away and came back at a later date).
8. Most international students attending primary and secondary schools are under the age of 18. They are mostly minor children of visitors to Canada who do not hold a work or study permit. Minor children of parents who hold a work or study permit can also have a study permit even though they do not need a study permit to attend primary or secondary schools in Canada (see Citizenship and Immigration Canada regulations at http://www.cic.gc.ca/english/study/minors-documents.asp).
9. China and India were also the top two source countries of international students in the United States and Australia in the early 2010s (see Perkins and Neumayer, 2014).
10. See Van Huystee (2011); Arthur and Flynn (2013).
11. About 92% of international students who made the transition to permanent resident in the first year after obtaining their first study permit between 1990 and 2004 were spouses or dependants of principal applicants in the economic class, in the family class, or landed as refugees. This share became smaller among those who made the transition later. For example, the share decreased to 53% among those who made the transition in the fifth year.

12. The negative association becomes slightly stronger when the source-country GDP per capita is adjusted for purchasing power parity (PPP) rates. The Pearson correlation between the source country GDP and the transition rate is −0.78, which changes to −0.81 when the PPP GDP is used.

13. See Beach et al. (2011); Picot et al. (2014).

14. Not surprisingly, the majority of former international student immigrants spoke one of Canada's official languages. The proportion who spoke neither English nor French ranged from 12% among those from the early 1990s cohort to 7% among those from the early 2000s cohort. As a point of comparison, 25% to 37% of all immigrants aged 15 or over who arrived in Canada through the 2000s (the vast majority of whom were not previously international students) spoke neither English nor French (Citizenship and Immigration Canada, 2014).

15. Among landed immigrants who were previously international students, only 4% of those who studied at the primary or secondary level became landed immigrants as principal applicants, and this proportion did not change across cohorts. In contrast, one-half to two-third of those who studied at the bachelor level or higher became landed immigrants as principal applicants.

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